

CLAIMS

1. An installation for sequentially transporting objects in a treatment line facility,

5 in which said objects are transported while suspended by pendle arms (4) from two symmetrical conveyors (6L, 6R) which travel through the installation under the control of synchronized driving means to pick up said objects in a loading station (7) and transport them individually to an unloading station (8) while passing by at least one station for the treatment of said objects,

10 wherein, in each conveyor, said pendle arms are secured in fixed positions distributed along a cable (60) which is moved by said driving means while being kept tensioned on guide wheels (63) defining a predetermined conveying circuit,

15 and wherein the loads (3-5) thus suspended via the pendle arms (4) are carried exclusively by said cables (60L, 60R) between their guide wheels (63L, 63R), said cable thus forming both traction motive and carrier means for said objects.

2. The installation as claimed in claim 1, wherein each of said conveyors (6L, 6R) comprises two similar cables, kept tensioned
20 parallel to one another and driven in synchronism along said conveyor circuit, and in that each of said pendle arms is secured to the two cables of the corresponding conveyor by an assembly device with an articulation pin allowing it to pivot in the vertical plane of the conveyor circuit, the guide wheels being in each location of the
25 conveyor circuit, at least in its active portion passing through the station or stations for the treatment of said objects, spaced by an interval leaving free the passage of said arms hanging vertically between them.

3. The installation as claimed in claim 1 or 2, comprising at
30 least one treatment station involving dipping said objects in a tank, wherein on corresponding inclined sections of circuit, said cables are free of all guidance, and due to the effect of torsional elasticity, the

flexibility of the cable contributes thereby to the lateral balancing of the loads on their passage in the tank.

4. The installation as claimed in any one of the preceding claims wherein, for an electrophoresis treatment in a tank as is
5 practiced in particular in paint facilities in car manufacturing plants, an electric ground circuit is arranged which passes through the cable, the latter being produced as a conductor, particularly to provide electrical conduction between two pendle arms carrying one and the same object on passing into an electrolytic treatment tank.

10 5. The installation as claimed in any one of the preceding claims, wherein said cable driving means comprise motive wheels (61, 61L, 61R) situated at one of the ends of a closed loop circuit followed by the cable, and advantageously situated to act in tracting the cable at the unloading station.

15 6. The installation as claimed in any one of claims 1 to 5, wherein said objects are transported while being suspended from the cables of the two conveyors by four independent arms (4), and wherein in each of said conveyors (6L, 6R), the cable or cables (60) describe closed loop circuits comprising a backward portion for
20 returning the pendle arms attached to it from the unloading station to the loading station which is situated laterally in the installation aside a forward travel path situated in its mid-portion along the line for conveying the objects being treated.

25 7. The installation as claimed in any one of claims 1 to 5, wherein, in each of said conveyors (6L, 6R), the cable or cables (60) describe parallel closed loop circuits which are each entirely contained in one same vertical plane.

30 8. The installation as claimed in claim 7, wherein said objects are conveyed suspended from the cables of the two conveyors by four independent arms (4) and in each of said conveyors (6L, 6R) said pendle arms (4) are attached to the respective cable (60) or cables (60aL, 60bL or 60aR, 60bR) by an

assembly device (43-45) with a single degree of freedom authorizing them to pivot in said vertical plane of said circuit.

9. The installation as claimed in any one of the preceding claims, wherein each conveyor being of the dual-cable type according
5 to claim 2, said two cables (60aL, 60bL or 60aR, 60bR) comprised in it are coupled by means of said pendle arms (4), the latter being fitted at their top end with an assembly device with two grips (45a and 45b) clamped respectively onto the two cables on either side of an articulation race allowing them to pivot in said vertical plane of said
10 circuit.

10. The installation as claimed in any one of the preceding claims wherein said pendle arms (4) are assembled to the corresponding cable (60) so as to be able to pivot about an articulation shaft or pin perpendicular to the vertical plane of the
15 cable, and wherein, on a return backward path bringing back said pendle arms from the unloading station to the loading station, means (40) are provided for tilting the arms circulating empty into a tilted position in which they are tilted toward the cable.

11. The installation as claimed in any one of the preceding
20 claims, for the transport of car bodies resting on sleds, wherein the bottom end of the pendle arms forms a hook (42) for picking up a sled arriving at the loading station which is released therefrom at the unloading station.

12. The installation as claimed in claim 1, for the transport
25 of car bodies resting on sleds conveyed suspended by four independent pendle arms (4), two of which respectively relating to each of said conveyors (6L, 6R), in which said conveyors drive said arms respectively along two parallel closed loop circuits which are each entirely contained in one and the same vertical plane and in
30 which each of said conveyors (6L, 6R) comprises two similar cables, kept tensioned parallel to one another on respective guide wheels, to which each of said pendle arms is attached hanging vertically between their respective circuits by an assembly device comprising

an articulation shaft or pin allowing the arm to pivot in the vertical plane of its circuit and two symmetrical grips clamped in fixed position respectively on each of the two cables which are thus coupled together.

- 5 **13.** The installation as claimed in any one of the preceding claims, in which said driving means provide between the cables of the two conveyors a synchronized operation so as to retain a predetermined positional relationship between said pendle arms (4) relating to each of said two conveyors, by speed and where
10 appropriate positional slaving.